

What is claimed is:

1. A starter assembly for an internal combustion engine having a crankshaft, the starter assembly comprising:
 - a starter motor, the starter motor having an output shaft capable of rotational motion;
 - an intermediate shaft for transmitting rotational motion between the output shaft and the crankshaft;
 - a first gear operatively connected between the output shaft and the intermediate shaft to transmit rotational motion between the output shaft and the intermediate shaft;
 - a friction-plate clutch associated with the first gear, the friction plate clutch constructed and arranged to operatively decouple the first gear from the intermediate shaft in response to torque shocks from the engine that exceed a predetermined threshold;
 - a second gear operatively connected between the intermediate shaft and at least a third gear, the third gear being operatively connected to the crankshaft, the second gear transmitting rotational motion between the intermediate shaft and the third gear; and
 - a clutch associated with the second gear permitting selective decoupling of the second gear from the third gear.
2. The starter assembly of claim 1, wherein the second gear axially moves on the intermediate shaft between a first position where the second gear is operatively coupled to the third gear and a second position where the second gear is operatively decoupled from the third gear.

3. The starter assembly of claim 1, wherein the friction-plate clutch forms a non-positive connection between the first gear and the intermediate shaft.
4. The starter assembly of claim 1, wherein the first gear and the second gear are both disposed on the intermediate shaft at positions axially offset from one another.
5. The starter assembly of claim 1, wherein the friction-plate clutch further comprises:
 - at least one driving disk connected positively to the intermediate shaft and connected non-positively to the first gear.
6. The starter assembly of claim 5, wherein the friction-plate clutch further comprises:
 - a hub disposed between the driving disk and the intermediate shaft, positively connecting the driving disk to the intermediate shaft.
7. The starter assembly of claim 5, further comprising:
 - a spring disposed adjacent to the driving disk, wherein the spring axially presses the driving disk against the first gear to non-positively connect the driving disk to the first gear.
8. The starter assembly of claim 7, wherein the spring is a disk spring.

9. The starter assembly of claim 6, wherein the hub defines at least one axial groove therein and the driving disk includes at least one projection thereon, the at least one projection positively connecting the driving disk to the hub through interaction between the at least one projection and the groove.
10. The starter assembly of claim 7, wherein the driving disk comprises a driving surface and wherein, by operation of the spring, the driving surface is pressed against an adjacent surface of the first gear.
11. The starter assembly of claim 1, wherein the first gear is a ring gear mounted rotatably on the intermediate shaft.
12. The starter assembly of claim 11, further comprising:
a bearing disposed between the first gear and the intermediate shaft to facilitate rotation therebetween.
13. The starter assembly of claim 6, wherein the first gear is a ring gear mounted rotatably on the hub.
14. The starter assembly of claim 13, further comprising:
a bearing disposed between the first gear and the hub to facilitate rotation of the first gear with respect to the intermediate shaft.
15. The starter assembly of claim 1, wherein the friction-plate clutch further comprises:

at least one driving disk connected non-positively to the intermediate shaft and connected positively to the first gear.

16. The starter assembly of claim 15, wherein the friction-plate clutch further comprises:

a hub disposed between the driving disk and the intermediate shaft, non-positively connecting the driving disk to the intermediate shaft.

17. The starter assembly of claim 16, wherein the first gear is a ring gear mounted on the hub so as to rotate thereon.

18. The starter assembly of claim 17, further comprising:

a bearing disposed between the first gear and the hub to facilitate rotation of the first gear with respect to the intermediate shaft.

19. The starter assembly of claim 1, wherein a hub is provided on the intermediate shaft and connects the friction-plate clutch to the intermediate shaft.

20. The starter assembly of claim 19, wherein the hub is rigidly connected to the intermediate shaft.

21. The starter assembly of claim 1, wherein the second gear is disposed on the intermediate shaft on one side of the first gear and the friction-plate clutch is disposed on the intermediate shaft on an opposite side of the first gear.

22. The starter assembly of claim 21, wherein a hub is provided on the intermediate shaft and connects the friction-plate clutch to the intermediate shaft.

23. The starter assembly of claim 22, wherein the hub is rigidly connected to the intermediate shaft.